

CLAIMS

1. A method of paging a mobile station to establish a packet-switched connection in a mobile telephone network that supports a circuit-switched connection and a packet-switched connection, in which method:

5 to establish a mobile-terminated circuit-switched connection, the mobile telephone network sends the mobile station a page request, and

in response to said page request, the mobile station switches to standby mode for a circuit-switched connection,

characterized in that

10 the mobile station listens only to the paging channels of the circuit-switched connection,

to establish a mobile-terminated packet-switched connection, the mobile telephone network sends the mobile station a page request via the circuit-switched connection and subsequently sends the mobile station additional information commanding it to switch to a packet-switched connection, and

15 in response to the additional information, the mobile station switches to the packet-switched connection.

2. A method as claimed in claim 1, **characterized** in that the page request is sent as follows:

a node (GGSN, SGSN) knowing the identifiers of the mobile station for both a packet-switched and a circuit-switched connection is formed,

20 in response to said node (GGSN, SGSN) detecting that packet data is being supplied to the mobile station, the node establishes a call via a public switched telephone network (PSTN) and a gateway MSC (GMSC) to the home network of said mobile station using the ISDN number of the mobile station,

25 in the home network of the mobile station, information on the mobile station is requested from a home location register (HLR), which in turn inquires the mobile station's location of a visitor location register (VLR),

30 the location is forwarded via the gateway MSC (GMSC) and the public switched telephone network (PSTN) to a visited MSC (VMSC), which sends a call set-up request to the base station system (BSS).

3. A method as claimed in claim 1, **characterized** in that the page request is sent as follows:

a node (GGSN, SGSN) knowing the identifiers of the mobile station for both a packet-switched and a circuit-switched connection is formed,

in response to said node (GGSN, SGSN) detecting that packet data is being supplied to the mobile station, the node establishes a call via a public

5 switched telephone network (PSTN) and a gateway MSC (GMSC) to the home network of said mobile station using the ISDN number of the mobile station,

in response to said gateway MSC (GMSC) detecting the additional information contained in the call set-up request, the gateway MSC (GMSC) inquires the mobile station's roaming number of the home location register

10 (HLR) and in response to the inquiry the home location register (HLR) inquires the same of the visitor location register (VLR),

in response to the roaming number inquiry addressed to the visitor location register (VLR), the MSC (VMSC) with which said visitor location register (VLR) is associated sends a call set-up request to the base station system (BSS).

15 4. A method as claimed in claim 1, characterized in that the page request is sent as follows:

a node (GGSN, SGSN) knowing the identifiers of the mobile station for both a packet-switched and a circuit-switched connection is formed,

20 in response to said node (GGSN, SGSN) detecting that packet data is being supplied to the mobile station, the node establishes a call via a public switched telephone network (PSTN) and a gateway MSC (GMSC) to the home network of said mobile station using the ISDN number of the mobile station,

25 in response to said gateway MSC (GMSC) detecting the additional information contained in the call set-up request, the gateway MSC sends a short message service centre (SMSC) a message indicating that a short message containing a command to switch to standby mode should be sent to the mobile station,

30 in response to the message sent by the gateway MSC (GMSC), the short message service centre sends a short message via the MSC and the base station system (BSS) to the mobile station (MS), and

in response to said short message, the mobile station (MS) switches to standby mode for a packet-switched connection.

35 5. A method as claimed in any one of claims 1 to 4, characterized in that said additional information is sent to the mobile station on a

paging channel known per se.

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in claim 1

6. A method as claimed ~~in any one of claims 1 to 4, characterized~~ in that said additional information is sent during an on-going call on a paging channel known per se, preferably on a FACCH or SACCH channel.

5 7. An arrangement for paging a mobile station (MS) to establish a packet-switched connection in a mobile telephone network that supports a circuit-switched connection and a packet-switched connection, in which method:

the mobile telephone network is arranged to send the mobile station 10 a page request to establish a mobile-terminated circuit-switched connection, and

in response to said page request, the mobile station is arranged to switch to standby mode for a circuit-switched connection,

15 characterized in that to establish a mobile-terminated packet-switched connection,

the mobile station (MS) is arranged to listen to paging channels only 20 on the circuit-switched connection,

the mobile telephone network is arranged to send the mobile station (MS) a page request via the circuit-switched connection and to send the additional information to the mobile station, and

25 the mobile station (MS) is arranged to switch to a packet-switched connection in response to said additional information.

8. A mobile telephone network that supports a circuit-switched connection and a packet-switched connection and is arranged to send the mobile station a page request to establish a mobile-terminated circuit-switched connection, characterized in that the mobile telephone network is arranged to

30 send the mobile station a page request via the circuit-switched connection to establish the mobile-terminated packet-switched connection, and

send the mobile station the additional information to switch the mobile station to the packet-switched connection.

35 9. A mobile station (MS) that supports a circuit-switched connection and a packet-switched connection, a paging channel for paging a mobile station being associated at least with the circuit-switched connection, characterized in that the mobile station is arranged to

listen only to the paging channels of the circuit-switched connection, monitor additional information sent on said circuit-switched connection, and

5 switch to the packet-switched connection in response to said additional information.